## REMARKS/ARGUMENTS

I. Concerning the Amendments

The specification is amended to correct a typographical error.

Claim 30 is amended to add new wording, namely "in the substantial absence of an applied electrostatic field." Support for this feature, which also appears in new Claims 81 and 82, is found in the specification, e.g. in the Examples. This language is added to further distinguish these claims from the teachings of Clarke et al. US 6,103,313.

New Claim 82 is presented in order to claim a preferred embodiment of the invention. Support for Claim 82 can be found, e.g., in Claim 80, and in the specification at page 7, lines 10-12 (mixing of certain reactive components), and at page 8, last paragraph (not photographic or pressure sensitive copy paper).

New Claims 83 and 84 depend from Claim 82 and are supported, e.g., in the specification at page 7, lines 10-16.

II. Concerning the Citation of Additional References

Applicants previously cited the presence of several copending applications. As a precaution, even though Examiner could already be aware of references cited in the files of those copending applications, such references that recently appeared in the record of any of those copending applications and that are not of record in this application are included on a Form PTO/SB/08A attached to an Information Disclosure Statement filed herewith. The following table is provided for Examiner's convenience.

| Attorney Docket No. | Serial No. | Examiner | Status |
|---|---|---|---|
| 61590A | 10/257,172 | J. Fortuna | Pending |
| 62733C | 10/687,324 | K.Bareford | Pending |
| 62738C | 10/687,322 | J. Fortuna | Pending |
| 62739C | 10/691,890 | K.Bareford | Pending |

III. Concerning the Rejection over Prior Art

Claims 1-4, 6, 9, 11-22, 25, 26, 30, 31, 33-44, 47, 48, 50, 53, 64-71, 73 and 75-80 stand newly rejected under 35 USC 103(a) as being unpatentable over Yokota in view of Kustermann, Takahashi et al. (hereinafter Takahashi) and Clarke et al. US 6,103,313 (hereinafter Clarke). The pending dependent claims not subject to this rejection stand rejected based upon this combination of references together with additional references. Unless otherwise indicated, Applicants at the present time elect to address the patentability of the independent claims, and for the purposes of this response the patentability of the dependent claims stands or falls together with the patentability of their relevant independent claim.

The invention is the first process that is able to coat a high solids, multilayer curtain of reactive components at high speed. The application contains four pending independent claims, namely Claims 1, 30, 80 and 82.

Yokota teaches a reactive coating process conducted at relatively low speed using a relatively low solids curtain. Yokota has no generic teaching regarding substrate velocity or solids content. The coating processes conducted in the examples of Yokota employ a substrate velocity of either 40 or 200 m/min. Applicants' calculations of the total solids content of the curtains of Yokota's examples indicate that the maximum solids employed was no more than 27 weight percent. The problem addressed by Yokota is poor layer purity due to intermingling of layer components caused by water transport phenomena in low solids coatings in the direction of the base paper, i.e. the base paper absorbs water. Yokota's solutions to limit water transport towards the base paper were as follows: (1) to use an isolating layer between two curtain layers that increase in viscosity when contacted with each other; (2) to use 2 adjacent layers that increase in viscosity over time when brought into contact with each other or mixed; (3) to precoat the substrate with water; or (4) to apply an interface layer of at least 90% water between the base paper and the other layers of the curtain. At column 2, lines 38-64, Yokota explains that photographic coatings contain gelatin, and that said coatings are cooled immediately upon coating to set the coating so that no intermingling of the coating layers is possible. He further explains that for his applications gelatin causes *problems*, as it degrades various properties of his coating materials. He also explains that, *unlike photosensitive*

*materials*, most of his materials use a substrate that readily absorbs water. At column 5, lines 52-3, he explains that intermingling of layers results in unsatisfactory products. At column 6, lines 6-10 he teaches that his process prevents intermingling of layers. Of the 4 procedures taught by Yokota, Examiner has selected the reactive process (2).

Kustermann discloses a suction device for a single layer curtain coater. The device removes entrained air from the moving uncoated substrate. Kustermann teaches that his coating medium can contain from 5 to 80 percent solids, and that the coating weight per application is between 2 and 40 $g/m^2$. He defines the term "per application" to indicate that "several applicator units can be provided ... for applying multiple coatings to the material web." Kustermann, col. 2, lines 64-67. He discloses that his single layer coater can run at more than 600 m/min., preferably more than 1,000 m/min.

Takahashi teaches a catch pan for a curtain coater, i.e. a device to cut and catch the curtain at start up and shut down of a coating operation without the formation of excess off grade coated substrate.

Kustermann and Takahashi are directed to mechanical devices, i.e. a suction device and a catch pan. They merely contain sweeping statements as to coating conditions. For example, Takahashi teaches that the catch pan can be used with any coating liquids "as long as they are coating liquids capable of being applied by curtain coating." However, Takahashi does <u>not</u> teach that there are no limits on curtain coating; to the contrary, Takahashi recognizes that coating speed is dependent on the coating conditions.

Regarding the teaching of Takahashi that conventional solids content can be used for single or multilayer curtain coating as long as the material is capable of being curtain coated, Applicants believe that Examiner reads Takahashi for more than it actually discloses. Examiner appears to be reading Takahashi as saying that *any* material, *regardless of solids*, can be applied successfully by curtain coating *regardless of the coating conditions*. Applicants respectfully submit that one of ordinary skill in the art would disagree with that interpretation of Takahashi; rather, Takahashi recognizes that there are limits to the coating window depending on the

coating material that is being applied. Takahashi at column 1, line 27, acknowledges that coating speed is dependent on the coating conditions. Applicants further submit that the teaching of Takahashi must be taken in context. In other words, the coating conditions, including web speed and the solids content of the coating material, have little to no bearing on whether Takahashi's catch pan will work. That is *not* a teaching that curtain coating can be done at any web speed for any material; the Rule 132 declaration of Dr. Bauer (hereinafter Declaration of Dr. Bauer), of record, supports this conclusion. This rationale also applies to Kustermann; however, Kustermann is further limited to single layer curtain coating.

Clarke discloses that the application of an electrostatic field can expand the coating window in a method for nonreactive, multilayer curtain coating of low solids photographic coatings, and discloses a model equation for said method. Clarke, at col. 1, line 38, also states that "the primary limitations to coating speed are well known" citing Kistler and Schweizer. Clarke also teaches that coating speed as a function of viscosity goes through a maximum for a given web roughness.

Applicants refer to examples of the references where there is no other teaching regarding a given parameter, e.g. solids content. Examiner refers to MPEP 2123 to support the proposition that examples do not teach away from a broader disclosure. However, Applicants have not argued that the examples of Yokota teach away from the invention. Applicants looked to the examples of Yokota and the other references for information that was otherwise lacking in the references, e.g. Applicant was forced to look to the examples to discern what Yokota disclosed regarding solids content because Yokota is silent regarding solids except for the Yokota examples.

To the extent that Examiner believes that the silence of a reference is a generic teaching that there are *no limits* as to a certain aspect of technology, Applicants respectfully disagree. As also stated in MPEP 2123: "A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments." (Citations omitted.) However, silence is not teaching. "The mere absence of an explicit requirement of isolation of the phases in example 4 cannot reasonably be construed as an affirmative statement that the phases need not be isolated." In re Evanega, 4 USPQ2d 1249 (Fed. Cir. 1987). The fact that Yokota has no generic teaching regarding solids does not reasonably suggest that a

high solids content could be employed in the process of Yokota. Applicants referred to the solids of Yokota's examples because those examples are the only source of information in Yokota regarding solids. Yokota simply has no other teaching regarding solids.

The primary issue is whether the prior art supports a prima facie case of obviousness.

The obviousness standard was recently addressed by the U.S. Supreme Court. The Court makes it clear that analysis establishing an apparent reason to combine known elements in the fashion set forth by the Office must be explicit and more than conclusory statements. "[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." KSR Int'l Co. v. Teleflex Inc., 127 S.Ct. 1727 (2007).

In KSR, the Court also addressed combinations as follows: "a court must ask whether the improvement is more than the predictable use of prior-art elements according to their established functions. Following these principles may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement." The Court further stated: "As is clear from cases such as *Adams*, a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." KSR, supra.

At pages 8-9 of the office action, Examiner states as follows:

> (4) It would further have been obvious to modify Yokota/'884 to perform *routine experimentation to optimize* the weight of the dried coating and *solids content* depending on the specific recording materials desired as suggested by Kustermann and Takahashi in order to provide a desirable coating, *given the variety of coating possibilities* given by Yokota and the *variety of materials* that can be present and the teaching by Kustermann that solids content in the range of 30-75% are desirable for curtain coating (which would include the claimed range of 45% or more) and that the coat weight can be 3-30 $g/m^2$ and the further teaching of Takahashi that

> conventional solids content can be used for single or multilayer curtain coating *as long as the material is capable of being curtain coated.* ... (6) Moreover, it would further have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 to *optimize the web speed* as taught by Kustermann, Takahashi and Clarke in order to provide desirable quick coating application, because Yokota/'884 teaches curtain coating various numbers of layers of coating and Kustermann teaches that a desirable web speed for curtain coating is over 600 m/min. and preferably over 1,000 m/min. and Takahashi teaches that desirable web speed for curtain coating can reach 1500 m/min., for example, and *describes that liquid can be used regardless of solid content concentrations as long as capable of being applied by curtain coating*, and Clarke teaches that high-speed curtain coating can be achieved based on the control of the conditions of the lowest layer, *indicating that the solid content of the layers would not affect the speeds reached*, as long as the lowest layer had the optimum condition. (Emphasis supplied.)

Applicants' understanding of the rationale behind the rejection is that because one can find various elements of the invention dispersed in the prior art, one would have been motivated to combine them in the manner of Applicants' claims by optimizing via routine experimentation both the solids and the web speed as explained in Examiner's paragraphs (4) and (6), quoted in the preceding paragraph.

Applicants submit, for reasons given hereinbelow, that the record does not contain any plausible explanation as to why one of ordinary skill in the art would have combined the teachings of Yokota, Kustermann Takahashi and Clarke at the time the invention was made in a manner sufficient to result in the claimed invention. While Examiner would combine the low solids references of Yokota and Clarke with the "anything is possible " interpretation of the teachings relating to the mechanical devices of Takahashi and Kustermann, there is no guarantee that anyone exploring the resulting universe of nearly limitless combinations would stumble upon the present invention. As opposed to the factual situation in KSR, supra., which involved selecting a combination from a finite number of simple mechanical elements, the art of multilayer curtain coating is complicated, as evidenced by Alleborn, and the

rejection is based on references that provide far more than a finite number of possibilities. Furthermore, the references often contain conflicting teachings and contain no guidance that would direct one of ordinary skill toward the subject matter of Applicants' claims. In addition, there are too many parameters in the art of curtain coating to support the contention underlying the rejection that one of ordinary skill in the art would have been motivated to combine the references in the manner required to arrive at the subject matter of Applicants' claims. Accordingly, Applicants submit that the prior art does not support a prima facie case of obviousness.

Examiner argues that Clarke teaches that high-speed curtain coating can be achieved based on the control of the conditions of the lowest layer, indicating that the solid content of the layers would not affect the speeds reached, as long as the lowest layer had the optimum condition. Applicants respectfully disagree. It is well known that a model developed on a given system will not necessarily work on a system that is significantly different. The model disclosed by Clarke clearly was developed using low solids materials applicable for photographic use. Furthermore, the model is based on layers that are relatively homogeneous, since the curtain is assumed by the model to be homogeneous. Therefore, the predictive affect of Clarke's model for reactive curtains of high solids content and changing viscosities is unknown.

The rejection is based on the rationale that it would be obvious to try modifying or "optimizing" Yokota via routine experimentation in view of the secondary references. However, it is well settled that "obvious to try" is not the standard of section 103. As stated in In re Antonie, 195 USPQ 6 (CCPA 1977): "The PTO and the minority appear to argue that it would always would be *obvious* for one of ordinary skill in the art *to try* varying *every* parameter of a system in order to optimize the effectiveness of the system even if there is no evidence in the record that the prior art recognized that particular parameter affected the result." (Emphasis in original.) "Obvious to try" was also addressed in KSR, supra., the Court stating as follows: "When there is a design need or market pressure to solve a problem and there are a *finite* number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp." (Emphasis supplied.) However, as Examiner recognizes: "given the variety of coating possibilities given by Yokota and the variety of materials that can be present

and the teaching by Kustermann" the number of variables associated with multilayer curtain coating systems do not provide a finite number of possibilities or solutions.

The office action makes several references to optimization. Optimization by definition is the perfecting of a given thing, e.g. a process, to run at the best conditions within its design parameters. However, the present invention could not be achieved by optimizing Yokota's process in view of Clarke, Takahashi and Kustermann, since multilayer, reactive, curtain coating at >600 m/min. and >45% curtain solids was not within the parameters of the prior art. In fact, it is possible that the electrostatic field taught by Clarke to expand the coating window would disrupt the reactive chemical system of Yokota, thereby resulting in an unworkable system rather than an optimized one.

Even if the references arguably could be combined as suggested by the rejection, the result would be unpredictable, in other words routine experimentation could not be done with a reasonable expectation of success and arriving at the subject matter of Applicants' claims. Clarke is directed to low solids coatings. The Clarke model was developed using a "substantially uniform" curtain. See Clarke column 5, lines 29-30. Interestingly, the examples of Clarke appear to employ only one layer in the curtain. In Example 1 (Figure 9), the lone coating composition contained less than 7% solids. The amount of gelatin is unspecified for Clarke's Examples 2 (Figure 10) and 3. The coating composition for Clarke Figure 2 is described as "an aqueous solution of gelatin, the usual vehicle for photographic products, and so is slightly shear thinning." Regarding Figure 3, Map (a) was developed using a solution having less than 4% solids, and Map (b) was developed using an 18% aqueous gelatin solution. For Figure 4, the coating liquids are "various concentrations of aqueous glycerol." The three coating compositions employed in Figure 5 are not specified. Figure 6 is based upon unidentified aqueous glycerol solutions. For Figure 8, an aqueous gelatin solution having less than 4% solids is employed. Accordingly, Clarke does not support the proposition that the Clarke teachings would apply to curtains having at least 45 weight percent solids since the Clarke model was developed using curtains having very low solids, and no solid fillers.

The result of combining the teachings of Clarke and Yokota's reactive process are unpredictable. It difficult to know how the effects of Clarke's electrostatic field

would impact the reactive system of Yokota, The Clarke model was developed for nonreactive systems. However, Yokota employs a reactive system. The effect of the electrostatic field of Clarke on the chemical reactions of Yokota is unknown. It is possible that the electrostatic field would interfere with the reactions of Yokota. The reactive system of Yokota is dynamic, e.g. the viscosity changes over time, whereas the substantially homogeneous curtain of Clarke is not. Accordingly, one can only speculate as to whether the electrostatic field of Clarke could be successfully employed with the reactive systems of Yokota. This speculation adds unpredictability to any system that would result from Examiner's proposed combination of Yokota and Clarke.

The unpredictability of Examiner's proposed combination is further indicated by the fact that the Clarke model is highly dependent on constant viscosity, whereas Yokota teaches that his reaction increases the viscosity at an interface between two layers. Clarke's model does not account for more than one viscosity value for a curtain. Yokota at column 8, lines 40 et seq. discusses the need to time his reaction carefully in order to not lose control of the changing viscosity, This is further evidence that one of ordinary skill in the art may have a limited ability to predict the behavior of changing Yokota's system by applying the teachings of Clarke.

For at least the foregoing reasons, there is no teaching which would motivate one of ordinary skill in the art to combine the teachings of Yokota, Clarke, Kustermann and Takahashi. "Obviousness cannot be established by combining the teaching of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under Section 103, the teachings of references can be combined only if there is some suggestion to do so." ACS Hospital Systems, Inc. v. Montefiore Hospital, 221 USPQ 929, 933 (Fed. Cir. 1984). (emphasis in original). Applicants' respectfully submit that Examiner has not provided any plausible explanation of why one would be motivated to combine the teachings of the references in a manner that would make the invention obvious. As such, the references do not support a prima facie case of obviousness, and reconsideration of the rejection is requested.

Examiner's position is that the motivation to modify the prior art lies in the knowledge that the use of higher speeds allows for the advantage of quicker coating,

allowing more efficient production. Examiner's position establishes the fact that the invention solves a long felt need in the art, especially when combined with the knowledge that despite the desire to go faster, skilled artisans, such as Yokota, did not know how to do so. Here the Declaration of Dr. Bauer is relevant in that it logically explains that either Yokota did not care to go faster, thus rebutting Examiner's statement of alleged motivation, or Yokota did not know how to go faster, thus establishing long felt need.

Since Yokota is clearly directed to solving a problem with watery, i.e. low solids, coatings that are readily absorbed by his substrate, Applicants submit that Yokota does not motivate the skilled person to operate the Yokota process at high solids, and submit that nothing in Yokota suggests that the Yokota process would work with high solids coatings.

Furthermore, Examiner's suggested motivation is nullified by the fact that the result of the combination is unpredictable, as explained hereinabove.

Even if, for the sake of argument, the references could be combined, it is not clear that a person skilled in the art would arrive at Applicants' claimed invention, i.e. there is no reasonable expectation that the combined teaching would result in a successful process within the scope of Applicants' claims. Yokota teaches multilayer coating but at low speed (200 m/min and lower) and relatively low solids. The rejection relies upon Kustermann as evidence that high solids, high-speed curtain coating is known in the art. However, the teaching of Kustermann is in connection with a single layer coating process. None of the references suggest that reactive multilayer coating can be conducted when using a high solids content curtain. Finally, many problems are known in the art of coating with high solids curtains, i.e. it is not a trivial matter to modify the process of Yokota by raising the solids. See the Declaration of Dr. Bauer, at paragraphs 4-7 and 9-13. As recognized by Clarke at col. 1, line 65, "anticipating the net result is difficult" when changing multiple aspects of a curtain coating process, such as by increasing the coating speed and the solids content. Takahashi at column 1, line 27, acknowledges that coating speed is dependent on the coating conditions. Applicants submit that one skilled in the art at the time this invention was made could not apply the teachings of Takahashi and Kustermann to those of Yokota with any reasonable expectation of success in view of the

unpredictability and difficulties associated with trying to do multilayer coating at single layer coating conditions. See the Declaration of Dr. Bauer, at paragraphs 4-7 and 9-13. The presence of the Clarke electrostatic field would only further complicate matters. Therefore, it is evident that the claimed invention was not contemplated in the prior art.

Applicants further request reconsideration in view of fact that the rejection appears to be based upon a hindsight reconstruction of the invention. As stated in In re Sponnoble, 160 USPQ 237, 243 (CCPA 1969): "The court must be ever alert not to read obviousness into an invention on the basis of the applicant's own statements; that is, we must view the prior art without reading into that art appellant's teachings. In re Murray, 122 USPQ 364 (CCPA 1959); In re Sporck, 133 USPQ 360 (CCPA 1962). The issue then, is whether the teachings of the prior art would, *in and of themselves and without the benefits of appellant's disclosure*, make the invention as a whole obvious. In re Leonor, 158 USPQ 20 (CCPA 1968)." (Emphasis in original.) "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." W. L. Gore & Associates, Inc. v. Garlock, Inc., 220 USPQ 303, 312-313 (Fed. Cir. 1983). Such use of hindsight is clearly forbidden. In re Skoll, 187 USPQ 481 (CCPA 1975).

Evidence of the use of hindsight in the construction of the rejection can be found in the fact that none of the references suggest the possibility of reactive, high-speed, high solids, multilayer curtain coating. Further evidence of hindsight can be found in the fact that the teachings of the references are disjointed and conflicting. While Examiner notes that Kustermann teaches that solids of 30-75% are desirable, Examiner ignores the fact that Yokota operates at low solids. While there is overlap between the solids of Yokota and Kustermann, that overlap is not in the range of at least 45% solids. Yokota operates at low solids and low-speed. Kustermann is directed to single layer curtain coating. Takahashi gives an example of single layer curtain coating at 1,000 m/min., but at a solids content well below that specified by Applicants' claims. The generic teachings of Takahashi and Kustermann merely indicate that their devices can be used with any operable coating process, but they do

not point toward the subject matter of Applicants' claims. Clarke only further complicates the rejection by introducing the electrostatic field to the situation, making the resulting hypothetical system less predictable. Yokota addresses a problem related to coating on highly water-absorbent paper. Unlike Yokota, Clarke employs nonabsorbent precoated or plastic substrates. For example, the descriptions of Clarke's Figures 2-4, 6, 8 and 9 indicate that the substrates are gelatin coated polyethylene terephthalate and photographic resin-coated paper. At column 10, Clarke teaches that examples of receiving surfaces or photographic papers that are commonly manufactured from raw paper stock onto which is laminated a polyethylene layer. To borrow a concept from In re Garvey, 41 USPQ 583 (POBA 1939), the likelihood of developing Applicants' process from reading the prior art "would be about the same as the likelihood of discovering the combination of a safe from a mere inspection of the dials thereof."

Even if, for the sake of argument, the references could be combined, the rejection appears to be based upon the proposition that each component of the claims allegedly can be found in at least one of the cited references. As stated in Environmental Designs, Ltd. v. Union Oil Co. of California, 218 USPQ 865, 870 (Fed. Cir. 1983): "[v]irtually all inventions are combinations and virtually all are combinations of old elements." Applicants respectfully submit that a reading of Yokota, Kustermann, Takahashi and Clarke would not put Applicants' invention into the hands of one of ordinary skill in the art, as the references do not teach how to do what Applicants claim.

Claim 1 is directed to a reactive, multilayer curtain coating process using a curtain with a solids content of at least 45% at a web velocity of at least about 600 m/min. The prior art allegedly shows components of the invention, but does not teach a high solids, high speed, multilayer curtain coating process, either reactive or non-reactive. The art does not suggest the claimed process, and had no appreciation of how to practice such a process. See the Declaration of Dr. Bauer, of record, at paragraphs 4-7 and 9-13. While the Declaration did not consider Clarke, which was not part of the rejection of the time of the Declaration, the addition of Clark to the rejection does not change the argument presented in this paragraph.

References relied upon to support a rejection must provide an enabling disclosure, i.e. they must place the invention in the possession of the public. As discussed in Dewey & Alma Chemical Co. v. Mimex Co., 52 USPQ 138 (2d Cir. 1948), a reference can not accidentally disclose an invention, but must contain adequate directions for the practice of an invention. It is not enough that the cited reference offers no more than a starting point for further experiments, or that its teachings will sometimes fail and sometimes succeed, or that it does not inform the art how to practice the invention. Applicants' position is that the secondary references do not enable one skilled in the art to operate *at Applicants claimed conditions*.

Applicants believe that the subject matter of the pending claims is not obvious, as the rejection is based upon a collection of references that do not enable the subject matter of the pending claims. As taught by Clarke, anticipating the net result of changes in multilayer curtain coating is difficult. None of the cited references have even one example showing multilayer curtain coating using a curtain having at least 45 weight percent solids at a speed of at least 600 m/min. Adding the teachings of Clarke, which relate to low solids multilayer reactive coating, does not cure this deficiency.

Kustermann and Takahashi fail as secondary references, as they do not inform the artisan how to modify Yokota to arrive at the process of Applicants' pending claims. See declaration of Dr. Wolgang Bauer, at paragraphs 4-7 and 9-13. Clarke does nothing to change the situation.

*None* of the references provide any examples of multilayer curtain coating at high speed with high solids, even using nonreactive curtain components. Accordingly, the references do not teach one of ordinary skill in the art how to practice the claimed invention.

Applicants maintain that neither Yokota, nor Kustermann nor Takahashi nor Clarke enable the skilled artisan to practice a high speed, high solids, multilayer curtain coating process. The only common aspect of Yokota, Kustermann, Takahashi and Clarke is that they are related to curtain coating. Yokota is directed to a multilayer curtain coating process wherein the layers can contain reactive components. Yokota has no generic teaching regarding either substrate speed or the solids content

of the curtain. The examples of Yokota are the only pertinent source of this information, i.e. speed and solids content, but disclose coating only at relatively low speed and low solids. While Examiner urges that the teachings of Yokota are not limited to its examples, that does not change the fact that Yokota has no teaching or suggestion regarding operation at higher solids and speeds.

Neither Yokota, Kustermann, Takahashi or Clarke contain any example or other teaching as to how one would practice high speed, high solids, multilayer curtain coating. While Examiner would rely on the generic teachings of Kustermann and Takahashi, close scrutiny reveals that there is no teaching regarding high speed, high solids, multilayer curtain coating. See the Declaration of Dr. Bauer, at paragraphs 4-7 and 9-13. Kustermann arguably suggests that a single layer curtain of widely varying solids content can be coated at widely varying speeds. However, Kustermann does not disclose simultaneous multilayer curtain coating, but instead teaches that several applicator units can be provided in sequence for applying multiple single layer coatings to a web. Kustermann does not contain any coating examples. Takahashi contains no generic teaching regarding the solids content of the curtain. In the examples of Takahashi, the single layer coating speed is 1,000 m/min. but the solids content of the single layer curtain is only 33%. Clarke clearly operates at low solids. None of the secondary references addresses curtain coating of reactive components.

Examiner argues that Clarke teaches that the solids content of a curtain would not prevent the use of high-speed multilayer curtain coating, in that Clarke teaches that high speed curtain coating can be achieved based on control of the conditions of the lowest layer *and that the solid content of the layers would not affect the speeds reached.* Applicants respectfully disagree. While Clarke teaches that the coating window can be expanded by the application of an applied electrostatic field at the point where the curtain impacts the moving web, Clarke's teaching is limited to very low solids curtains. The fact that Clarke's teachings are limited to low solids coatings does not reasonably teach one of ordinary skill in the art anything about high solids coatings. Clarke recognizes, at column 1, lines 37-40, that the primary limitations to coating speeds are well-known, and that there are trade-offs involved in curtain coating, in other words, that improving one aspect of performance normally results in

degrading another aspect of performance, *so that anticipating the net result of changes is difficult.* See Clarke at column 1, lines 40-67.

Perhaps Kustermann arguably could be seen as enabling for single-layer, nonreactive coating at high speed, but it is clear that Kustermann does not enable the multilayer, reactive coating process claimed by Applicants. Similarly, Takahashi and Clarke might arguably be enabling for low solids, nonreactive coating, but do not enable the high solids, reactive coating process of the present claims. Accordingly, Applicants submit that the references do not enable, teach nor suggest a high solids, high speed, multilayer, reactive curtain coating process as claimed by Applicants.

Applicants are unaware of any teaching in the secondary references that would enable the present invention. Examiner has not pointed to evidence in the secondary references to support the position that the secondary references are enabling with respect to the conditions of the process of the present invention. The Declaration of Dr. Bauer is evidence to the contrary. Examiner was previously invited to submit an affidavit supporting this position, but has not done so.

Beginning at page 15 of the office action, Examiner addresses some aspects of Applicants' prior response. While Examiner recognizes that Applicants have argued that the references do not enable one skilled in the art to operate at the claimed conditions, Applicants note that Examiner has not responded to this argument.

Examiner argues that Clarke proves that that the solids content of the curtain would not prevent high speed multilayer curtain coating, and that Clarke is evidence that one would not expect solids to have an effect on coating speed. Applicants respectfully disagree. Clarke discloses a model that clearly was developed for a low solids, nonreactive system. Therefore, Clarke has no predictive effect for high solids curtains. Clarke's model equations, developed for low solids compositions, include variables for density and viscosity. It is well-known that solids content will have some effect on density and viscosity. Therefore, Clarke does not prove that solids have no effect on coating speed.

Examiner largely discounts the declaration of Dr. Bauer, citing a portion of MPEP 716.01(c)III. This section of the MPEP also states as follows: "Although factual evidence is preferable to opinion testimony, such testimony is entitled to

consideration and some weight so long as the opinion is not on the ultimate legal conclusion at issue. While an opinion as to a legal conclusion is not entitled to any weight, the underlying basis for the opinion may be persuasive." Examiner argues that Yokota was under no duty to provide examples at the highest possible speed that could be coated. However, as argued above, this does not overcome the fact that Yokota does not disclose multilayer curtain coating at high web velocities. Dr. Bauer cites the Alleborn article as evidence that it would not be a simple matter to take a high speed single layer coating process and convert it to a multilayer coating process operating at the same speed. Neither Clarke, nor any other prior art, indicates otherwise.

The patentability of Claim 75 is separately asserted. Claim 75 depends from Claim 1 and further specifies that the web velocity is at least about 800 m/min. Accordingly, all the preceding arguments apply to Claim 75, but Claim 75 is even more nonobvious than Claim 1 in view of the higher speed specified.

The patentability of Claim 80 is separately asserted. Claim 80 is directed to a method of producing coated paper or paperboard using a multilayer curtain having a solids content of the least about 45 weight percent a curtain interface layer that comprises polyethylene oxide, and contacting the curtain with a web substrate having a velocity of at least about 1,000 m/min. The equivalent of 1,000 m/min. is over 1,666 cm per second. Applicants respectfully submit that this combination of features is neither taught nor suggested by the prior art.

The patentability of Claims 30, 81 and 82 is separately asserted. One common feature of these claims is that they are directed to processes conducted in the substantial absence of an electrostatic field at the point where the curtain contacts the substrate. For example, Claim 81 depends from Claim 80 and further specifies that the process is conducted in the substantial absence of an applied electrostatic field. The subject matter of these claims is very distinct from the teachings of Clarke, who is only able to obtain high-speed coating by applying a substantial electrostatic field.

IV. Concerning the Objections

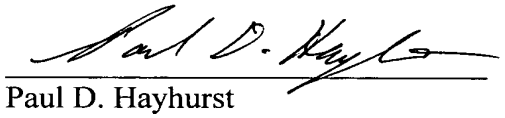
Examiner states that the earliest effective date for the present application is no earlier than October 17, 2002. Applicants do not necessarily agree with that

statement, but reserve comment on it since there are no outstanding issues relating thereto.

V. Conclusion

For the foregoing reasons, reconsideration of the claims and passing of the application to allowance are solicited.

Respectfully submitted,



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PDH/ab